



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. FAA-2015-0720; Special Conditions No. 23-263-SC]

Special Conditions: Honda Aircraft Company Model HA-420; Single-Place Side-Facing Seat Dynamic Test Requirements.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Honda Aircraft Company HA-420 airplane. This airplane will have a novel or unusual design feature(s) associated with a side-facing passenger seat. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER], and is applicable on March 25, 2015. We must receive your comments by [INSERT DATE 30 DAYS AFTER PUBLICATION DATE],

ADDRESSES: Send comments identified by docket number [FAA-2015-0720] using any of the following methods:

- ☐ Federal eRegulations Portal: Go to <http://www.regulations.gov> and follow the online instructions for sending your comments electronically.
- ☐ Mail: Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE., Room W12-140, West Building Ground Floor, Washington, D.C., 20590-0001.
- ☐ Hand Delivery of Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, S.E., Washington, D.C., between 9 a.m., and 5 p.m., Monday through Friday, except Federal holidays.
- ☐ Fax: Fax comments to Docket Operations at 202-493-2251.

Privacy: The FAA will post all comments it receives, without change, to <http://regulations.gov>, including any personal information the commenter provides. Using the search function of the docket web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the Federal Register published on April 11, 2000 (65 FR 19477-19478), as well as at <http://DocketsInfo.dot.gov>.

Docket: Background documents or comments received may be read at <http://www.regulations.gov> at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE., Washington, D.C., between 9 a.m., and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Bob Stegeman, Federal Aviation

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SUPPLEMENTARY INFORMATION:

The FAA has determined, in accordance with 5 U.S. Code §§ 553(b)(3)(B) and 553(d)(3), that notice and opportunity for prior public comment hereon are unnecessary because the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA therefore finds that good cause exists for making these special conditions effective upon issuance.

<u>Special Condition Number</u>	<u>Company/Airplane Model</u>
23-255-SC	Embraer Model EMB 500
23-251-SC	Embraer Model EMB 500
23-105-SC	Sino Swearingen Model SJ130
23-254-SC	Embraer Model EMB 505

Comments Invited

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

Background

On October 11, 2006, Honda Aircraft Company applied for a type certificate for their new Model HA-420 aircraft. On October 10, 2013, Honda Aircraft Company requested an extension with an effective application date of October 1, 2013. This extension changed the type certification basis to amendment 23-62.

The HA-420 is a four to five passenger (depending on configuration), two crew, lightweight business jet with a 43,000-foot service ceiling and a maximum takeoff weight of 9963 pounds. The airplane is powered by two GE-Honda Aero Engines (GHAE) HF-120 turbofan engines.

The HA-420 design incorporates the installation of a side-facing belted passenger seat as a customer configuration option. The implication of the term belted is that the passenger seat will be used during takeoff and landing and so must comply with the provisions of §§23.562, 23.785, and any additional requirements that the FAA determines are applicable. In this case, the approval of a side-facing seat to these provisions is considered new and novel and as such will require special conditions and specific methods of compliance to certificate.

Type Certification Basis

Under the provisions of 14 CFR 21.17, Honda Aircraft Company must show that the HA-420 meets the applicable provisions of part 23, as amended by amendment 23-1, dated July 29, 1965, through amendment 23-62, dated December 2, 2011, thereto.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 23) do not contain adequate or appropriate safety standards for the HA-420 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the HA-420 must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36. In addition, the FAA must issue a finding of regulatory adequacy under § 611 of Public Law 92-574, the "Noise Control Act of 1972."

The FAA issues special conditions, as defined in § 11.19, under § 11.38 and they become part of the type certification basis under § 21.17(a)(2).

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, the special conditions would also apply to the other model.

Novel or Unusual Design Features

The HA-420 will incorporate the following novel or unusual design feature:

Side facing passenger seat intended for taxi/takeoff and landing

The seat is to incorporate design features that reduce the potential for injury in the event of an accident. In a severe impact, a 2-point seatbelt and the adjacent padded wall will restrain the occupant. In addition to the design features intended to minimize occupant injury during an accident sequence, the adjacent forward wall/bulkhead interior structure will have padding or at

least be pliable enough to absorb impact energy, which will provide some protection to the head of the occupant.

Discussion

The Code of Federal Regulations states performance criteria for forward and aft facing seats and restraints in an objective manner. However, none of these criteria are adequate to address the specific issues raised concerning side-facing seats. Therefore, the FAA has determined that, in addition to the requirements of parts 21 and 23, special conditions are needed to address the installation of this seat installation/restraint.

Part 23 was amended August 8, 1988, by amendment 23-36, revised the emergency landing conditions that must be considered in the design of the airplane. Amendment 23-36 revised the static load conditions in § 23.561 and added a new § 23.562 that required dynamic testing for all seats approved for occupancy during takeoff and landing. The intent of amendment 23-36 is to provide an improved level of safety for occupants on part 23 airplanes. Because most seating is forward-facing in part 23 airplanes, the pass/fail criteria developed in amendment 23-36 focused primarily on these forward- and aft-facing seats. Since the regulations do not address side-facing seats, these criteria should be documented in special conditions.

The FAA decision to review compliance with these regulations stems from the fact that the current regulations do not provide adequate and appropriate standards for the type certification of this type of seat. These requirements are substantially similar to other single place side-facing seat installations approved for use on several different part 23 and part 25 aircraft.

Accordingly, these special conditions are for the Honda Aircraft Company model HA-420 side-facing seat location. Other conditions may be developed, as needed, based on further FAA review and discussions with the manufacturer and civil aviation authorities.

Applicability

As discussed above, these special conditions are applicable to the HA-420. Should Honda Aircraft Company apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model of airplane. It is not a rule of general applicability and it affects only the applicant who applied to the FAA for approval of these features on the airplane.

The substance of these special conditions has been subjected to the notice and comment period in several prior instances, identified above, and has been derived without substantive change from those previously issued. It is unlikely that prior public comment would result in a significant change from the substance contained herein. Therefore, notice and opportunity for prior public comment hereon are unnecessary and the FAA finds good cause, in accordance with 5 U.S. Code §§ 553(b)(3)(B) and 553(d)(3), making these special conditions effective upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

List of Subjects in 14 CFR Part 23

Aircraft, Aviation safety, Signs and symbols.

Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113 and 44701; 14 CFR 21.16 and 21.101; and 14 CFR 11.38 and 11.19.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Honda Aircraft Company model HA-420 airplanes.

1. Single-Place Side-Facing Seat.

In addition to the airworthiness standards in §§ 23.562, amendment 23-50 and 23.785, amendment 23-49, the following special condition provides injury criteria and installation/testing guidelines that represent the minimum acceptable airworthiness standard for single-place side-facing seats:

a. The Injury Criteria

(1) Existing Criteria: All injury protection criteria of § 23.562(c)(1) through (c)(7) apply to the occupant of a side-facing seat. Head Injury Criterion (HIC) assessments are only required for head contact with the seat and/or adjacent structures.

(2) Body-to-Wall/Furnishing Contact: The seat must be installed aft of a structure such as an interior wall or furnishing that will support the pelvis, upper arm, chest, and head of an occupant seated next to the structure. A conservative representation of the structure and its stiffness must be included in the tests. It is recommended, but not required, that the contact

surface of this structure be covered with at least two inches of energy absorbing protective padding (foam or equivalent), such as Ensolite.

(3) Thoracic Trauma: Thoracic Trauma Index (TTI) injury criterion must be substantiated by dynamic test or by rational analysis based on previous test(s) of a similar seat installation. Testing must be conducted with a Side Impact Dummy (SID), as defined by 49 CFR part 572, subpart F, or its equivalent. TTI must be less than 85, as defined in 49 CFR part 572, subpart F. SID TTI data must be processed as defined in Federal Motor Vehicle Safety Standard (FMVSS) part 571.214, section S6.13.5.

(4) Pelvis: Pelvic lateral acceleration must be shown by dynamic test or by rational analysis based on previous test(s) of a similar seat installation to not exceed 130g. Pelvic acceleration data must be processed as defined in FMVSS part 571.214, section S6.13.5.

(5) Shoulder Strap Loads: Where upper torso straps (shoulder straps) are used for occupants, tension loads in individual straps must not exceed 1,750 pounds. If dual straps are used for restraining the upper torso, the total strap tension loads must not exceed 2,000 pounds.

b. General Test Guidelines

(1) One longitudinal test with the SID ATD or its equivalent, un-deformed floor, no yaw, and with all lateral structural supports (armrests/walls).

Pass/fail injury assessments: TTI and pelvic acceleration.

(2) One longitudinal test with the Hybrid II ATD, deformed floor, with 10 degrees yaw, and with all lateral structural supports (armrests/walls).

Pass/fail injury assessments: HIC; and upper torso restraint load, restraint system retention and pelvic acceleration.

(3) A vertical (15 G's) test is to be conducted with modified Hybrid II ATDs using existing pass/fail criteria.

Issued in Kansas City, Missouri on March 25, 2015.

Pat Mullen

Acting Manager, Small Airplane Directorate

Aircraft Certification Service

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